Space Weather Forecast

Issued on Tuesday, 08 November 2022 at 13:12 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of M-class flares (R1; Minor radio blackouts). Very slight chance of G1/Minor storms.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low, with several Common-class flares observed in the past 24 hours. There are six numbered and one unnumbered active regions on the visible disc. A large region in the east remains the most complex sunspot group. Another spot in the far northeast is the second largest region, with a moderately sized mature spot, but is inactive. The only other moderately sized spot resides in the northwestern hemisphere. All other spots are relatively small and simple at this time. No Earth-directed Coronal Mass Ejections (CMEs) have been observed.

Solar Wind / Geomagnetic Activity: The solar wind has been generally slow-ambient with averages around 380-390km/s, and occasional increases to slightly elevated levels, with peaks around 410km/s. Total magnetic field strength, IMF, has been generally moderate. A brief strong interval was observed between 07/1630-07/1715 UTC, with a peak value of 15.7nT at 07/1655 UTC. The important north-south component, Bz was moderately negative between 07/1200-1745 UTC, with a peak value of -14.6nT at 07/1656 UTC. Through the middle part of the period Bz has been predominantly weak to moderate and positive, but returned to moderate negative from 08/0600 UTC. Geomagnetic activity increased to reach Minor Storm/G1 (Kp5) levels between 07/1500-2100 UTC, before easing back to Quiet to Active levels (Kp2-4).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained at background levels with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is forecast to be generally Low, with a chance of Moderate activity and a continuing very slight chance of High levels of activity.

Solar Wind / Geomagnetic Activity: Geomagnetic activity is expected to be mainly Quiet to Unsettled given generally slow-ambient solar winds, but there is a chance of Active intervals at times given any prolonged periods of negative Bz and approaching coronal hole high speed streams. There is a very slight chance of G1/Minor Storm intervals, mainly due to the possible arrival of one or more coronal hole high speed streams in the coming days.

Energetic Particles / Solar Radiation: The count rate of energetic particles (High energy protons) is forecast to persist at background with no solar radiation storms occurring.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	Yes	10	10	10	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	30	40	50	50
Very Active	R3 to R5 X	No	5	5	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	2	5	5	5
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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